ENGINEERING NEWS-RECORD

A's tenth anniversary Cherokee and 22 other plants are producing power for war.

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QUICK FACTS about the NEW GOODYEAR STEEL CABLE V-BELT

POWER CAPACITY: Exceeds any V-belt now on the market. Handles overloads and peaks far more satisfactorily.

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LIFE: Less trouble -- in numerous applications has run many times longer.

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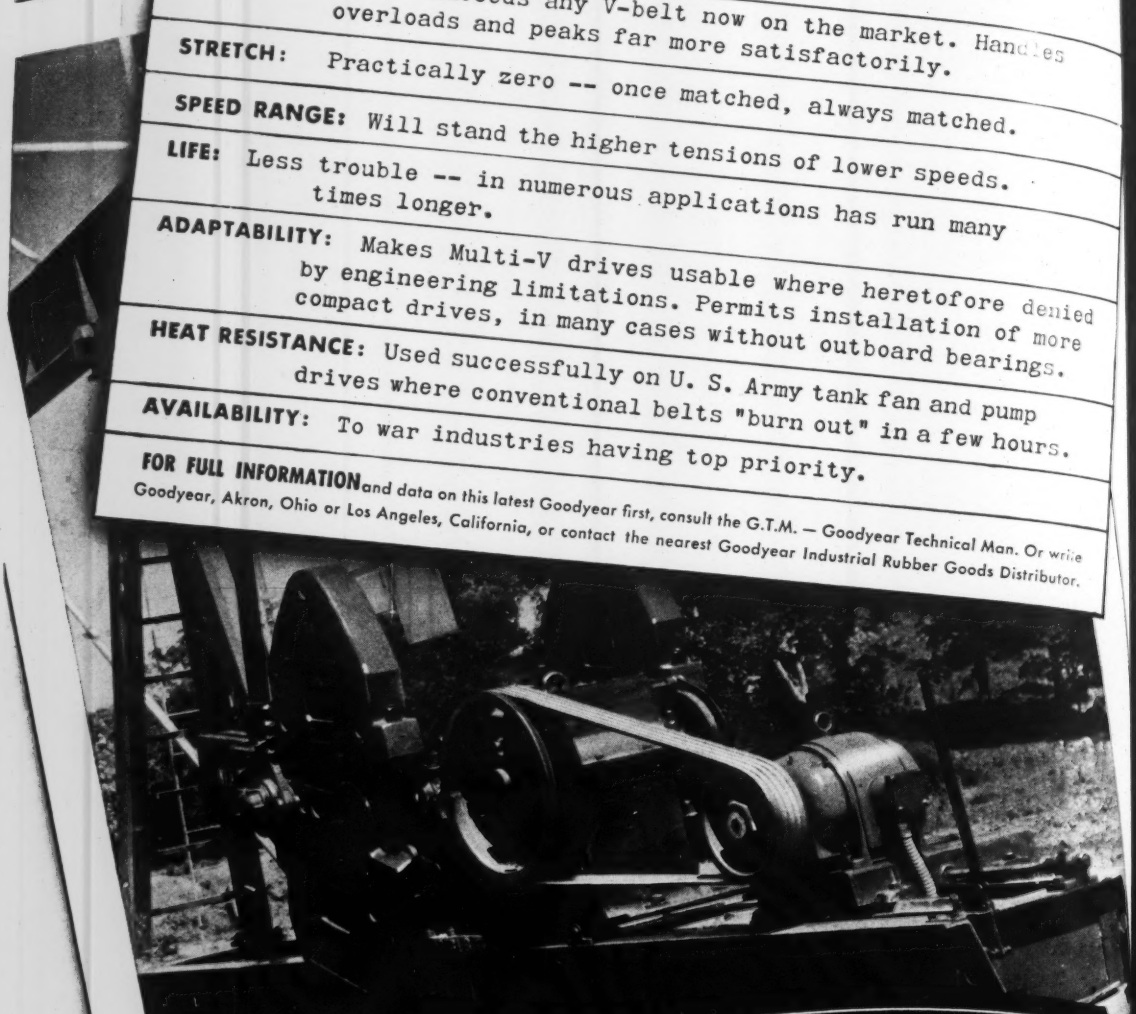
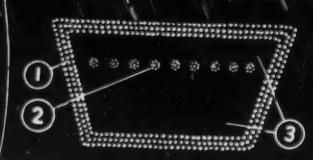
FOR FULL INFORMATION and data on this latest Goodyear first, consult the G.T.M. — Goodyear Technical Man. Or write Goodyear, Akron, Ohio or Los Angeles, California, or contact the nearest Goodyear Industrial Rubber Goods Distributor.



GTM-Specified GOODYEAR ENDLESS STEEL CABLE V-BELT for Multi-V Drives



1. Heavy, super-tough black cover with uniform friction, longer life
2. Load-carrying, endless, steel cables in neutral plane
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GOODYEAR

THE GREATEST NAME IN RUBBER

The Week In Engineering and Construction

NEERING NEWS-RECORD • MAY 13, 1943 • VOLUME 130 • NUMBER 19

oadbuilders launch their rogram for postwar roads

vernment officials, engineers, contractors and manu- turers discuss plans for highway work to help reduce shock of transition from war to peacetime economy

nering again and again at the planning ahead right now if building is to play its full part postwar economic adjustment, s at the 41st annual convention American Road Builders Associa- ld in Chicago, May 4-7, launched twar program outlined in a study ced by the association a few weeks *NR*, Mar. 25, p. 407). Planned postwar conference, the 650 dele- considered few other subjects, and me of the four-day session was ing at least a five-year program way construction by states, coun- d municipalities to be ready im- ly after the war.

Postwar designing

g the several outstanding engi- nd government officials in atten- Gen. Phillips B. Fleming, admin- Federal Works Agency, advised mbly that the primary object of planning is to prevent another pression, with the attendant wide- nemployment. "We do not want n merely to a state of normalcy," n. Fleming, "but we want to in- l-time employment at good wages y person willing and able to Soundly conceived, and properly ted public roads promote gen- lfare, and their construction is ed one of the best aids to em- t when private initiative can not ll the jobs necessary to maintain loyment, he said.

efore," continued Gen. Flem- e time for speculative postwar is past and the time for post- gning is here." Our preliminary to attend to the prelimi- the legal and financial phases c construction; the acquisition and rights-of-way; and the ad- ngineering so that employment immediately available when the s, he said.

A comprehensive report on the part to be taken by road construction after the war, prepared by Robert Moses, park commissioner, New York City, stated that the purposes of a postwar public works program are to be ready immediately after the war to resume deferred construction, to employ returning members of the armed forces and men released from war production, and to stimulate private industry. The preparation of mere preliminary studies, sketches and engineering generalization will not be sufficient. What we need are complete blueprints, specifications, estimates and bid proposals all "salted away" ready to be brought out when the time is most appropriate.

Prepare plans now

Since contract work aims at the employment of machines rather than men, said Mr. Moses in his report, it may be argued that this alone will not meet the entire employment problem. A mixed system of contract and work relief, under which the contractor is required to employ a majority of his men from work-relief or ex-servicemen rolls, would have many advantages and should be suited particularly to highway construction. The cost of a straight contract system to employ all those out of work after the war at prevailing rates of wages would be prohibitive, and some reconstruction and repair projects involving force account and work relief will, therefore, have to supplement major contract jobs. It is, therefore, all the more important that we concentrate at this time on a sensible, straight-forward program of highway design and avoid wrangling over the eventual source and size of construction funds, disputes about acquisition of rights-of-way and other debatable matters which require no immediate solu-

Military and civilian experts talk it over

Prominent at the A.R.B.A. convention in Chicago last week were these four men representing the military, construction and engineering interests. Their discussions were thoughtful and timely. From left to right: James J. Skelly, Media, Pa., new president of the contractors division; Lt. Col. E. R. Needles, chief, mechanical equipment section, construction division, Corps of Engineers; Carl W. Brown, chief engineer, Missouri State Highway Department, new president of the association; and Capt. L. N. Moeller, (CEC) director, progress control and statistical dept., Bureau of Yards and Docks, U. S. Navy

tion. If we can get enough design money now to finish plans and specifications for a big postwar program, the remaining questions will settle themselves at the proper time.

As Mr. Moses was unable to attend the meeting, his paper was presented by Sidney M. Shapiro, assistant chief engineer, Long Island State Park Commission.

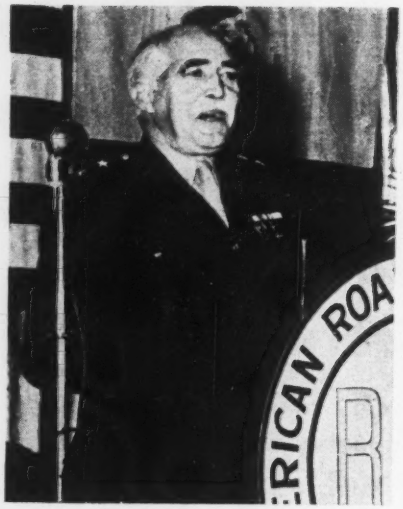
New York's plan

New York City's postwar construction program involving the appropriation of $25,000,000 to be spent now on preparing plans and specifications was described by Irving V. A. Huie, commissioner, Department of Public Works, who reported that actual designs are already under way. Although this program encompasses new construction and alterations to existing structures, said Mr. Huie, it provides for much-needed improvements long since overdue, and the same should hold true for all postwar planning.

The 1942 budget for New York City provided for "actual design and completion of specifications and contract documents of approved projects", which would be ready for construction immediately after the war. The 1943 budget continues this program within the original budget by merely reducing the money allocated for construction and increasing the funds available for preparation of designs. The amended budget contemplates a public-works program estimated to cost approximately $700,000,000. Of this, $146,000,000 is allocated to buildings; $13,000,000 for bridges and $90,000,000 for sewage disposal plants.

No one inside the city government expects this entire construction program will be completed in the first year following the war since its progress will depend on the ability of the city and the attitude of the federal government to provide necessary finances, said Mr. Huie, and neither is it claimed to cure all the ills of the city for even the immediate future. It is only intended to afford some of the present necessities by providing for "existing inadequacies, replacement of obsolete facilities, normal repairs in the city's physical plant; and a few new developments."

A distinct parallel exists between this very definite postwar program actually being executed and the problems confronting roadbuilders, contended Mr. Huie. Any practical highway construction program must necessarily consider facilities for municipalities and counties,



Maj. Gen. Phillip M. Fleming, administrator, Federal Works Agency, told the A.R.B.A. our primary task is to plan to prevent another disastrous depression following the war.

including connecting links between federal and state arterial highways, as there is hardly a community in the country that does not have a highway problem.

Regarding the controversial problem of whether or not federal grants for roadbuilding should be made directly to municipalities or be siphoned through state governments, Mr. Huie expressed the opinion that where the highway in question would be constructed and maintained as part of a highway system, the grant should come through the state. However, where the road or highway is to be constructed by the municipality there should be very little reason why it can not be a direct grant. The direct granting of aid to municipalities applies equally as well to areas and communities immediately adjacent to our cities.

Start planning at bottom

W. T. Chevalier, vice-president, McGraw-Hill Publishing Co., urged that all postwar planning, including highways, start at the bottom. "Don't wait for Washington to tell you what to do," he cautioned the convention, "but start your own planning, right at home, and right now. Then these plans will filter to the top. No one in Washington knows what is needed in your community, and planning from the top won't do the job that must be done."

Mr. Chevalier took exception to the general trend of thought running through the convention that we are planning for a depression period. He points that conditions will be just the from those of a depression beca people will have a large pur power that does not exist in a sion—an accumulated purchasing that will carry us through the period providing it is not sapped away inflation. "We are plann an era after this war, not for a 3 years ago or 10 years ago, b for conditions we cannot foresee warned Mr. Chevalier. "so we nee ble minds for flexible planning is too much tendency today to depression thinking to postwar pro We are thinking of a new period history, not the rebuilding of one." He pointed out that our highway program, as well as all construction programs, must be on need and utility, not on unem ment and relief. Lastly, Mr. Ch made a strong plea to keep federal a sound, scientific formula for di tion of funds, similar to the pre in the past, and to resist all at to switch to a pork-barrel system tribution. Such a switch, he would not only bring the end of aid, but would ruin the highway e that means so much to the econ the nation.

Equipment will be available

Several speakers pointed ou equipment will be available for an war construction program that planned. The 100,000 pieces of o tion equipment now owned by the engineers will soon be largely distr overseas, to the Alcan highway the various camps and war plan maintenance, according to Lt. Col. Neddles, chief, mechanized equi section, construction division, Co Engineers. "Much of our equipm being overhauled for combat servi said, "and within 6 or 8 months the engineers will be out of the equi business. Worn-out and obsolete ment will be junked. There will b little of what we now own availab postwar construction."

Other speakers held that the enough equipment now in the ha the contractors, municipalities and public agencies to meet postwar H. O. Penn, equipment distribu New York City, pointed out that more than 400,000 units available and manufacturers may be able to duce some new units when they g

(*Continued on page* 11)

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eral highway balances may be used postwar plans and specifications

ess to hold hearings on a bill that would permit state highway ments to use unexpended federal-aid for postwar studies

nded balances of federal-aid held by the states would be ilable for financing advance postwar highway projects terms of a bill which will come before the House in a Pigeonholed since its intro- st March, the bill is now ten- heduled for hearings next week ort shortly thereafter.

must be passed soon, if ever, e unexpended balances allotted anuary, 1942, will be cancelled lotted July 1 unless the bill he bill would permit the use y, secondary, and grade-cross- for "economic and engineering ons of projects for future con- for surveys, plans, specifica- estimates . . ." Moreover, if so desired, they could earmark of the money for expenditure war on the construction of rojects.

troversial feature of the bill rmit expenditure of available nds for the purchase of rights- Federal-aid money has never been made available for land except in connection with the ent federally financed access- ram. The Bureau of the Budget Congress that the President dis- of the land-purchase clause and has asked its omission from the bill. There's a possibility, however, that the House roads committee will leave the clause in anyway.

Presidential disapproval of the land purchase provision is somewhat disconcerting to some of the Eastern states, where land purchase forms a substantial part of the cost of the urban express roads on which emphasis is now being placed. The predominantly rural states, where land is not a large factor, have never been much interested in this matter and have several times in the past defeated efforts to include land purchase. Rural thinking generally dominates Congressional highway actions, because the urban Congressmen have never paid much attention to roads.

A similar urban-rural division shows signs of building up over the proposal to readjust the basis of allocating federal-aid funds among the states. This proposal is embodied in the pending measure to authorize a three-billion dollar postwar highway program (*ENR*, Apr. 22, p. 532). The present law bases allocation equally on population, area, and highway mileage. The proposed bill would base it 50 percent on population, 25 percent each on area and mileage. This, of course, would increase the amount going to the populous eastern states and correspondingly reduce the share of the western states. The clause in the pending bill represents a compromise with an eastern proposal to use 50 percent population, 25 percent auto registration, and 25 percent area. For all practical purposes this would have amounted to giving a 75 percent weight to population. There are indications that western representatives will be unwilling to go along with the compromise.

• • •

Funds for Florida canal refused by Senate

Senate efforts to include funds for the Florida Barge Canal in the War Department Civil Functions Appropriation proved unavailing last week. A Senate sub-committee inserted $28,000,000 for the project in the measure, to replace a $44,000,000 sum stricken out by the House. But, as expected, the full Senate committee struck out the money and was upheld in this on the Senate floor. This completes Congressional action on the measure except for minor differences between Senate and House versions.

• • •

Engineer officers promoted to generalships

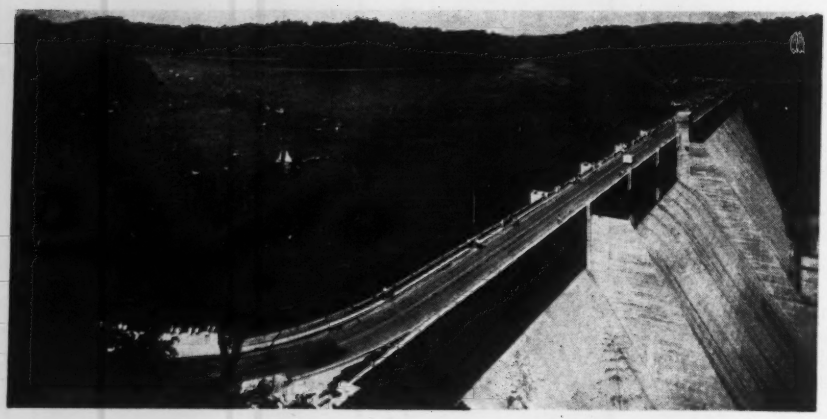
The War Department on May 4 announced a number of nominations for promotion of high army officers, among them are these four engineers: Brig. Gen. Thomas B. Larkin, of Vicksburg, Miss., to become a major general; Col. Cecil R. Moore, Harrisonburg, Va.; Arthur W. Pence, of Ft. Monroe, Va., and Ludson D. Worsham, of Buntyn, Tenn., to become brigadier generals.

Work started on plant for communications equipment

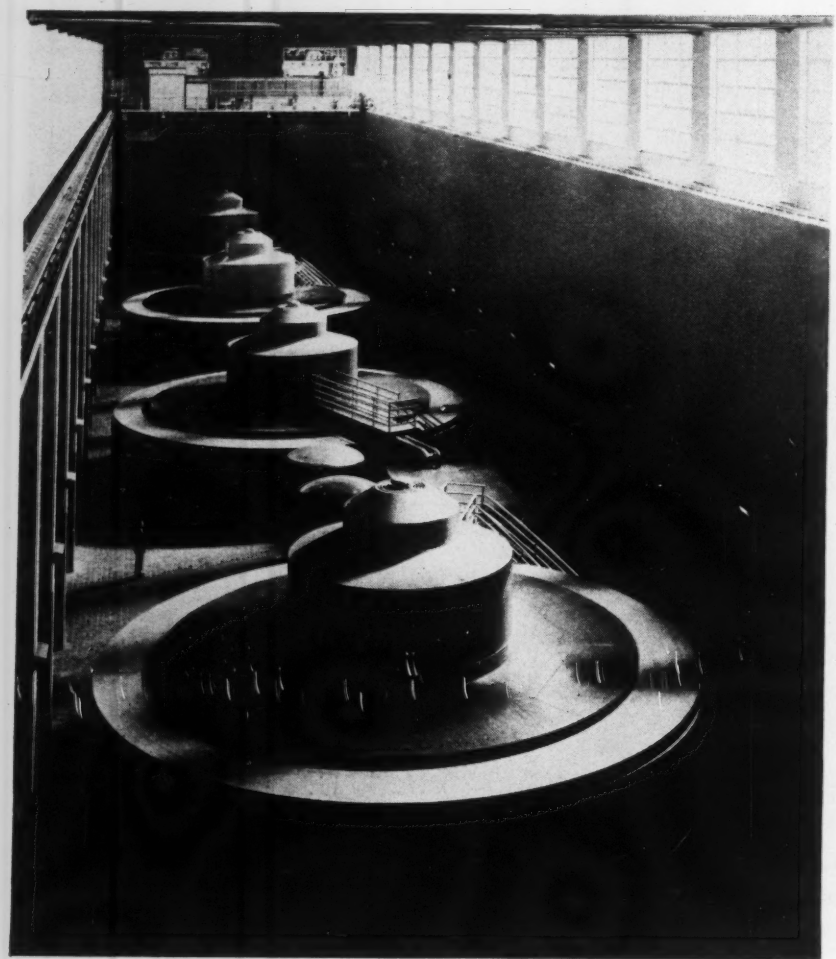
under way in Clifton, N. J., on the g of a modern industrial group of or the Federal Telephone & Radio ufacturing subsidiary of the Inter- lephone & Telegraph Corp. ial unit, a one-story brick and structural steel building, will have about two acres of space under one roof for the manufacture of communications equipment to be used in the war effort.

Covering the site comprising the former Yountakah Country Golf Course in the townships of both Clifton and Nutley, N. J., the completed project will eventually house all International Telephone & Telegraph Corp. manufacturing activities in the United States. Turner Construction Co. is the general contractor, and Louis S. Weeks is architect.

Ten Years of TVA Achievements



Norris Dam, named for the senator who did so much to make the Tennessee Valley Authority possible, was the first dam to be built by the Authority. It provided a large amount of storage for flood control and power. The reservoir area has been developed for recreational use.



Power plants having an installed capacity of 1,000,000 kw. have been built by the TVA since its organization. Shown here are the power units at the Pickwick Landing Dam.

TEN YEARS AGO Congress creat Tennessee Valley Authority inst it: "To improve the navagability provide for the flood control Tennessee River; to provide fo estation and the proper use of m lands in the Tennessee valley; vide for the agricultural and in development of said valley . . . act became effective on May 18 Since that date the Tennessee Authority has built thirteen large created 385 miles of 9-ft. nav channel for commerce, provided than 8,000,000 acre-ft. of flood storage, produced nearly 30,000,0 kw.-hr. of electric energy, provide 000,000 seedlings for reforestati manufactured 500,000 tons of ph and fertilizer.

The TVA now is rated as one largest producers of phosphorous cendiary bombs, smoke screens, bullets and the like. Ammonia a monium nitrate also are manufa for munitions, as is calcium c for the production of synthetic ru

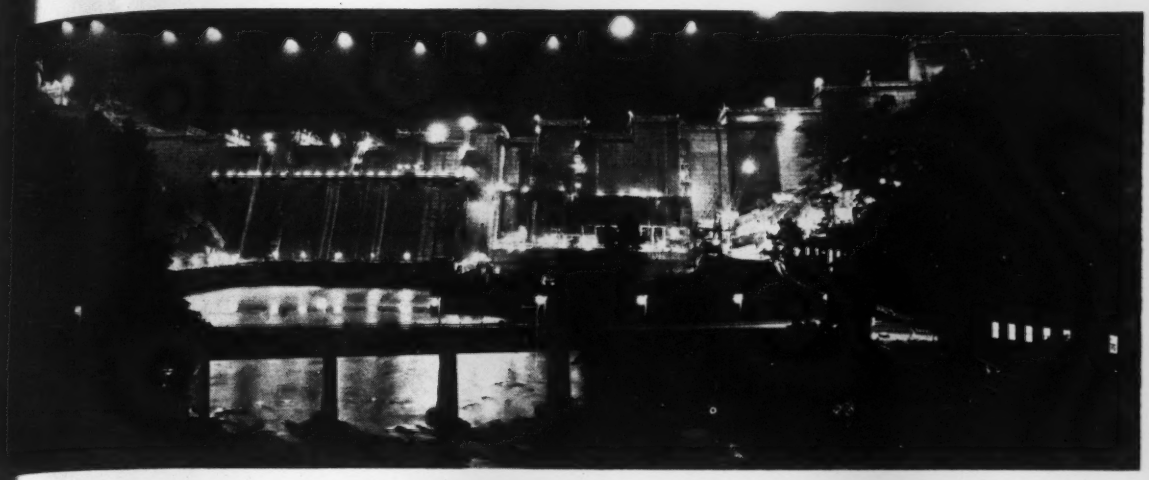
In addition, pilot plants have developed to extract alumina fro and magnesium from olivene roc native kaolins have been proven for chinaware to replace clays cannot now be imported.

Along agricultural lines, TVA ha active in checking soil erosion a better use of the agricultural la the valley. It also has developed small machines for food and feed essing and pilot plants for textiles machines have been made primar the small farm, low-income area Tennessee Valley.

Construction with safety

From an engineering viewpoint has been outstanding in dam desi construction. More than 7,600,000 of concrete and about 20,000,000 of earth and rock have been pla such structures. An index of the ner in which the construction op tion has been perfected in ten y found in the accident rate sta Since the TVA was organized the dent frequency (number of ac accidents per million man-hours reduced from 55.7 in the first y 12.4 at present, or 78 percent. T rate (number of days lost per 1,0 hours) has been reduced 47 p from 5.06 in the first year to 2.6 tenth.

Much of the construction ha done under the tempo of war-g



Construction has increased in tempo and volume as the TVA program has widened in scope. This night view was made of Hiwassee Dam, in the mountains of North Carolina, in 1939.

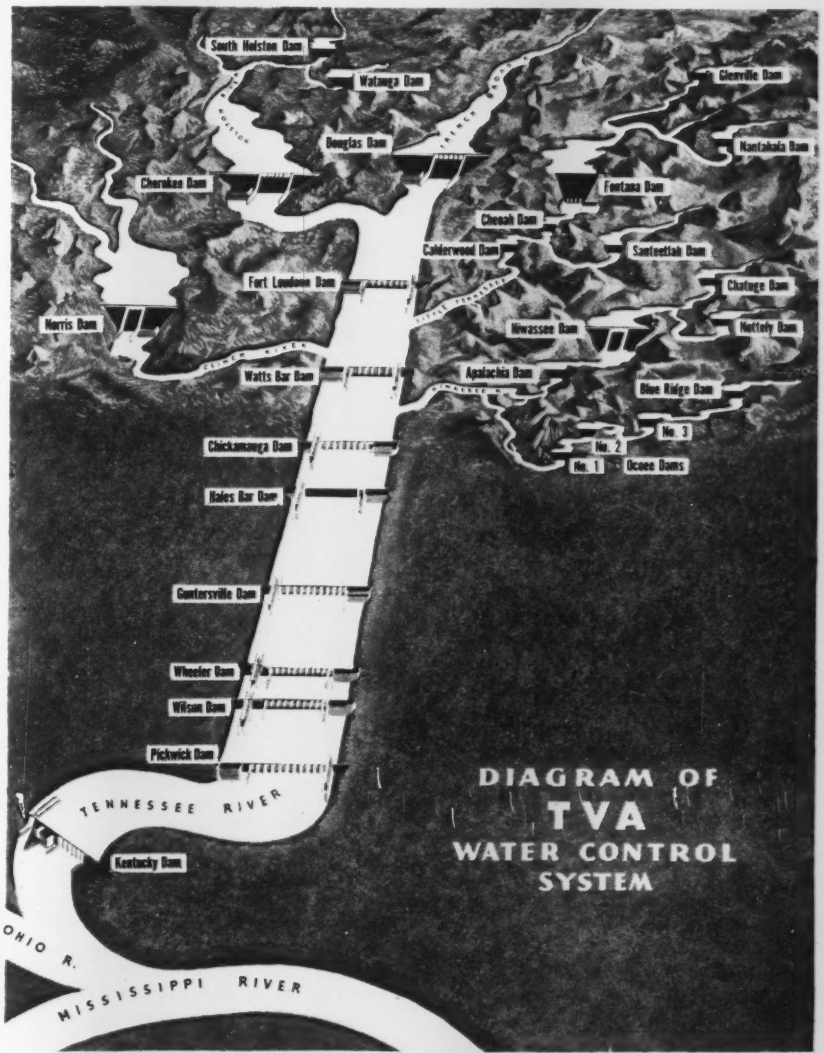
y. Eight of TVA's dams have mpleted since France fell in 1940. installed power capacity has in- since Pearl Harbor from 1,000,- to 1,500,000 kw.

ddition to the dams already com- TVA has two more nearing com- Fort Loudoun and Kentucky, and ntana Dam under way. One steam as been built by the TVA and it quired by purchase six hydro- power dams and four steam

A second in power empires

hydro and steam plants built and sed have an installed power ca- of 1,635,640 kw.; installations nder way will add 453,200 kw. 6,000 miles of transmission lines service. At the current rate of generation, the TVA system ranks among the power systems of the States. At least 75 percent of wer now goes into war production. d control and navigation also alled for a large amount of engi- g work. Flood storage of 8,000,000 in the reservoirs has done much uce flood crests in the Tennessee. nd lower Mississippi rivers.

-round commercial navigation on nnessee from the Ohio River to n, Tenn., is now provided. A 9- nnel is assured under any water on upstream from Pickwick. On tion of Fort Londoun and Ken- Dams only a small amount of dredg- l be required to provide 9-ft. navi- from the mouth of the river to lle, Tenn., a distance of 650 miles. gation has increased from 32,- 0 ton-miles in 1933 to 161,470,000 les in 1942. TVA river freight als are under construction or are ing at Chattanooga, Tenn., Deca- d Guntersville, Ala. Private com- also have built new terminals the river.



New York Times Magazine

Flow from the headwaters of the Tennessee Rivers is stored and its flow controlled by the series of dams utilizing a total drop of 500 ft. on the main river and more than 2,000 ft. additional on the tributaries. Dams on the Little Tennessee, except Fontana, are property of the Aluminum Co. but flow and power are controlled by the Tennessee Valley Authority.

J. R. Worcester dies, Boston consultant

Joseph R. Worcester, founder of the Boston consulting engineering firm of J. R. Worcester & Co., died in Waltham, Mass., on May 9, aged 83. In 1924 Mr. Worcester gave up active direction of the firm but continued as a consultant to the staff.

Born in Waltham on May 9, 1860, Mr. Worcester received his A.B. degree from Harvard and in 1882 began work with the Boston Bridge Works as a draftsman, ultimately becoming chief engineer of the company. In 1894 he began practice as a consulting engineer, chiefly for the Boston Transit Commission and the Boston Terminal Co. In this capacity, he directed the design of most of the structures for the Boston Elevated Railway. In 1907 Mr. Worcester organized the consulting firm bearing his name.

Mr. Worcester was one of the early students of reinforced concrete, serving as a member of the Joint Committee on Concrete and Reinforced Concrete from 1904 to 1911 and as chairman from 1911 to 1916. From 1921 to 1930 he was a member of the Building Code Committee of the Department of Commerce.

Mr. Worcester was elected to honorary membership in the American Society of Civil Engineers in 1937.

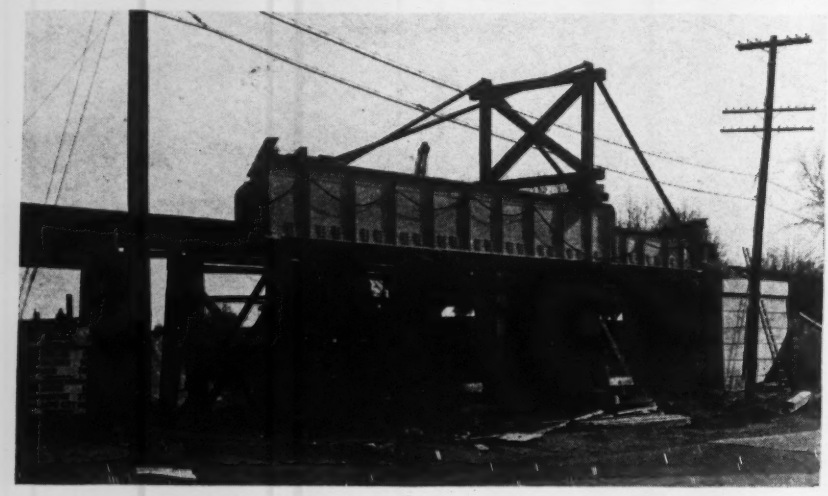
Stop-order procedure

Where construction projects are halted through the issuance by the War Production Board of revocation or stop orders, contractors will be advised in the future to contact redistribution officials of the appropriate regional office in regard to disposal of material purchased for projects that have been halted.

The Redistribution Division of WPB will assist contractors in disposing of material and equipment made available as the result of Stop-order Procedure.

New Memphis bridge plans are advanced

The Memphis & Arkansas Bridge Commission, authorized by Congress in 1939 to build a bridge across the Mississippi River at Memphis, Tenn., has requested the U. S. Public Roads Administration to take the lead in arranging cooperation with the Department of Highways and Public Works, of Tennessee, and the State Highway Commission, of Arkansas, for the engineering studies and design of the proposed bridge and the financing of the project. E. H. Crump of Memphis is chairman of the bridge commission.



Bridge erected without interrupting traffic

An underpass on the heavily traveled, Fort Dix-Trenton, N. J., highway was widened last month, without interfering with railroad operations, by completely erecting the new girder spans on falsework immediately adjacent to the site, removing temporary trestles supporting the tracks and rolling the spans into position—all with clock-like regularity.

This new bridge on the Bordentown branch of the Pennsylvania R.R., includes two 55-ft., one 17-ft. and one 20-ft. through girders weighting 200 tons complete with floorbeams, concrete deck, ballast and track. A timber frame, shown on top of the girders, prevented excessive deflections during erection. Built-up steel columns support the girders.

With the falsework carried on railroad-type trucks and wheels to permit quick shifting, spans were put in position and temporary supports removed in six months.

Construction was by the Franklin Contracting Co., Newark, N. J., for the New Jersey State Highway Department, Morris Goodkind, bridge engineer.

Concrete barges discus... at San Francisco meeti...

Design and construction method... ployed on the many concrete barges... being built on the Pacific Coast... actively discussed in San Francis... May 4, at the largest meeting ever... by the Structural Engineers Associ... of Northern California. Design me... were presented by Stanley C. Kin... Ellison & King, designers of barges... under construction on the Pacific C... and construction methods were desc... by J. F. Barrett, senior partner of... rett & Hilp, contractors for 26 of... 366-ft. barges.

On this contract, the forms for... hulls are set up in six basins or dry... and are later moved out after wat... admitted to float the completed h... Mr. Barrett said that the weight of... crete when pouring started was 12... per cu.ft. and that this has been... duced to 116 lb. Further reductions... being studied. Longitudinal bars, we... into one piece the full length of... ship, are dragged into the forms fo... a time, after which 22 men pick up... bar and lay it in place.

Mr. King described stress anal... methods and explained why provi... has to be made for loads on the ship... tom as high as 2,368 lb. per sq.ft.... deck loads as high as 416 lb. per s... A wave coming aft on the deck and s... ing a vertical bulkhead, requires... vision against a horizontal force of... lb. per sq.ft. Steel bars in the mid... tion, where reinforcing is heav... amount to 35 lb. per cu.ft. of concr... The steel has to be accurately and c... fully placed to maintain prescri... clearances; in some locations bars... within ½ in. of the concrete surf... The bottom of the vessels is 7-in. th... and the side walls are 6-in. thick.

• • •

Tennessee Valley states show economic progress

James P. Pope, director of the T... nessee Valley Authority, said recen... that Tennessee, Alabama, Georgia a... Mississippi, the four major states of... Tennessee Valley, had outstripped t... nation as a whole in economic prog... during the past decade. Manufactu... plants in the four states increased p... duction 52 percent from 1933 to 19... compared with 32 percent for the nat... Mr. Pope also disclosed that wage ea... ers in the four-state area increased th... earnings 40 percent during the pe... compared with 36 percent in the re... the country, and that the per ca... income in the four states rose 75 per... compared with 56 percent for the o... states.

Y. society to sponsor ior engineer group

nsorship of a state society of engi-in-training was voted by the New State Society of Professional Engi- at its 16th annual convention held York, May 7-8, provided 25 engi-in-training apply to the society for setting up such a society. As yet are no young men who could make n application as the Department ucation will not hold its first ex-tion to qualify engineers-in-training June. Under a policy adopted last (*ENR*, June 18, 1942, p. 969) the ment will give engineering gradu-examinations in parts I and II of ree-part engineer-license examina-mmediately following graduation d of requiring them to wait until have acquired the four years of al experience called for under the icense law.

Disagreement on policy

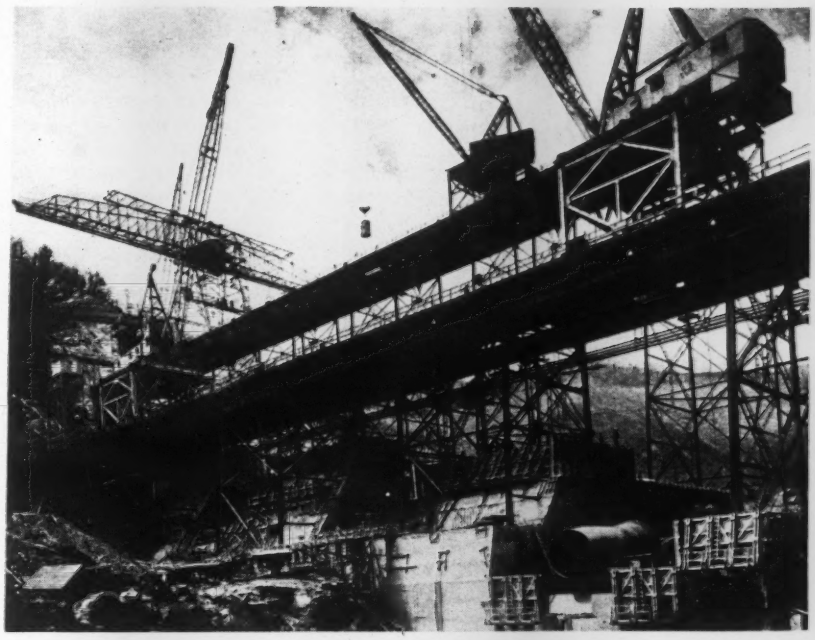
re was sharp disagreement both in rectors' meeting and during con-n sessions over the policy to adopt respect to engineers-in-training. ociety's committee on the subpect. liscussion of the matter with some men who expect to take the June nations, recommended that a sepa-ciety be set up in which the only the parent society would have be appointment from its own mem-f not more than one third of the of directors. This was opposed as impracticable, and as undesirable e it meant setting up another engi-society. Admission of engineers-ing to the existing society as af- or juniors was favored, thus giv-young men a part in the society's es and giving the chapters of the a better opportunity to aid the men. The committee's proposal prevailed, provided enough young xpressed themselves as in favor

Examination plans

n Conroe, assistant commissioner Department of Education, stated necessary the department will e dates now set for examinations ng graduates and others who can so that young men called to mili-ervice may qualify as engineers-ing before induction.

society re-elected most of its offi-ontinuing James F. Fairman, vice nt of the Consolidated Edison Co., econd term as president.

e membership in the society de-from 1,858 a year ago to 1,696. the year the society added over to its assets. The directors were zed to invest a considerable part surplus funds in war bonds.



Concrete underway for East's largest dam

TVA's Fontana Dam rises rapidly from bedrock of the Little Tennessee River in western North Carolina. Its height of 460 ft. and content of 2,800,000 cu.yd. of concrete make it by far the largest dam east of the Rockies and its rush construction schedule of two years for war power makes it one of the largest construction jobs ever undertaken.

Two levels of construction trestle carry revolving cranes for handling concrete and materials. Two big hammerhead cranes will also operate on the upper level of the bridge.

Cantilever forms, raised by A-frames, will be used for the concrete construction. Sections of two of the three power penstocks, in the lower right of the picture, are almost ready for embedment in concrete.

C. E. Blee, recently appointed chief engineer of TVA, has been project manager at Fontana Dam, being succeeded by Fred C. Schlemmer. Oren Reed is construction engineer and G. E. Murphey is superintendent.

Engineer troops praised for work in New Guinea

American Negro engineering troops, the first American soldiers to set foot in New Guinea, on April 28 celebrated the first anniversary of their landing. They were praised by the commanding general as "one of the hardest working outfits in the Army."

These soldiers, who under white officers have lived, worked and died in constructing the Allies' most important base in the Southwest Pacific, had their second day off in a year. "You have helped make possible the destruction of a convoy in the Bismarck Sea, you have aided in the flying of infantry over the mountains and in a hundred actions against the enemy," Brigadier General Hanford MacNider told them. "You have built causeways and docks and even unloaded ships so that we could eat and fight. Some of you have been to war with tanks. You know all about bombs. All of us over here are proud of you. You have been good soldiers."

At Buna this engineering outfit unloaded tanks which played a decisive factor in the annihilation of the Japanese there. Eleven of their number have lost their lives in line of duty in New Guinea.

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Highway speeds lowered to 37 miles an hour

The average speed of passenger cars in this country was brought down to 37 mph. under the federal order setting a 35-mile hour speed limit, according to a study recently completed by the Public Roads Administration. Rationing in the East, and later throughout the entire country, coupled with the national appeal for a 40-mile limit, previously had reduced the average passenger-car speed from 47 to 44 mph.

Fifty-three percent of all cars still travel in excess of 35 mph., as compared to 91 percent about one year ago. Cars traveling faster than 40 mph. now amount to only 22 percent, as compared to 78 percent a year ago.

The average speed of trucks showed little change until the 35-mile limit was established. It then dropped from 39 to 35 miles per hour.

MEN AT WORK

LIEUT. COL. IRA F. BENNETT was recently made district engineer, U. S. Engineer Office, Charleston, S. C., succeeding COL. D. W. GRIFFITH who was transferred to Jacksonville, Fla., as district engineer.

ROBERT ARMSTRONG is with the firms of Foley Bros. and Spencer, White & Prentis on work in Iran where this picture was made.

FRANK BARRETT, of Barrett & Hilp, general contractors, San Franc... operating a pneumatic vibrator in the first concrete poure... (on Mar. 26) ... U. S. Maritime Commission contract for 26 concrete barges which his firm ... On Mr. Barrett's right is L. N. McMACKIN, chief hull inspector at this ... the U. S. Maritime Commission.

Reviewing drawings for a large synthetic rubber plant at Baton Rouge, ... under construction by The H. K. Ferguson Co., industrial engineers and ... for Firestone Tire and Rubber Co. are (left to right) GUY B. P... Project Manager for The Ferguson Co.; W. A. S. HARMON, Project Engi... Firestone; J. H. LADUKE, General Superintendent for Ferguson; F. M... Assistant Project Engineer for Firestone, and E. B. REYNOLDS, Job ... Engineer for Ferguson.

To complete on schedule an Army hospital, Cambridge, Ohio, despite ... winter was the job of the three below. They are, left to right, MAJ. ... H. McGAVOCK, area engineer, U. S. Engineers; FRED SOLTOW, brick ... tendent; and Z. JOHN FAY, structural engineer, Ohio River Division Eng... office, Columbus.

e short courses sanitary engineers

short, intensive summer courses ary engineering for persons with more years of college training, ivalent practical experience in engineering, have been an- by W. W. Charters, director, of Training, War Manpower sion, and George W. Case, di- f engineering, science and man- war training, War Manpower sion and U. S. Office of Edu-

10-16 week courses are tuition will be offered at the following ons: Alabama Polytechnic In- Auburn, Ala.; George Washing- versity, Washington, D. C.; Uni- of Michigan, Ann Arbor, Mich.; ity of Texas, Austin, Tex.; Poly- Institute of Brooklyn, N. Y.; ity of Southern California, Los Calif., and Oregon State Col- rvallis, Ore.

of interest to sanitary engineers nnouncement by the department ary engineering of the University h Carolina that it will offer an summer course in the chemistry r purification this year in order t the urgent need for trained el in water purification plants. ourse will begin June 7 at Chapel C., and will be under the direc- Prof. W. B. Snow. Cooperating course are the North Carolina of Health, the North Carolina Works Operators Association and titute of Government of the Uni- of North Carolina.

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ern power scheme ived in England

British government has decided engineering experts reexamine discussed scheme for developing n the tidal estuary of the Severn s a possible project to be under- o create employment after the

y two decades ago a plan was promoted for building a dam the estuary to control the large w in the estuary using it for the ment of hydro-electric power Vol. II, 1925, p. 459). The was revived in 1933, at which was estimated that the dam, reser- nd power machinery would cost ,000 and that the work would years. It is now estimated that rk can be done with modern nt in about 11 years.

scheme is carried forward, it is e that a bridge to carry both d rail traffic across the estuary e built on top of the dam.

MEN AND JOBS

Lewis Goodell, for a number of years assistant to city engineer **Henry F. Alexander,** of Lorain, O., received the highest grade in a civil service examination to determine a successor to Alexander, who retired recently. Mr. Goodell's grade was 92.8.

Lawrence B. Feagin, district engineer of the St. Louis, Mo., engineer district, was promoted on April 5 to the rank of full colonel. Colonel Feagin was also recently elected president of the St. Louis section of the American Society of Civil Engineers.

S. Paul Jones, for many years on the engineering staff of the Oregon State Highway Commission, has been named by the governor as state evacuation officer.

David F. LaPrade, Jr., formerly of the state highway department of Virginia, has assumed his new duties as city engineer of Hopewell, Va. He succeeds **Carl E. Sampson.**

Alexander Lorraine Carruthers has been named chief engineer, Department of Public Works, Victoria, B. C., succeeding **Arthur Dixon,** who has been appointed deputy minister of public works.

Fred H. Robinson, superintendent of maintenance in Jackson County, O., for the state highway department during the last four years, has resigned to accept a position with the Chesapeake & Ohio Railway at Richmond, Va.

C. S. Rassmussen, resident engineer with the South Dakota State Highway Commission since 1937, has been appointed district engineer with headquarters at Pierre. He has been employed by the South Dakota State Highway Commission since 1925.

Harry A. Schmitt, city manager of Shorewood, Wis., a suburb of Milwaukee, has been commissioned a captain in the army reserve and is awaiting orders which will take him into active duty. He was city engineer of Shorewood for six years before being appointed manager. He is a member of the American Society of Civil Engineers and of the International City Managers' Association.

Maj. Fred G. Erie, administrative officer, of the Seattle District, U. S. Engineers, has been promoted to lieutenant colonel; **Lieut. Arthur C. Satre,** assistant to the Wenatchee area engineer, has been promoted to captain and **Capt. Sydney C. Dean,** assistant to the chief of the Seattle district control division, has been transferred to post utilities engineer headquarters at Gowen Field, Boise, Ida.

Robert W. Thornburg, of Bessemer City, N. C., has been promoted from lieutenant (jg) to lieutenant in the United States Naval Reserve at the Charleston Navy Yard. Lieutenant Thornburg is a graduate of the Clemson College School of Engineering, Clemson, S. C. He completed a course in naval architecture at the Massachusetts Institute of Technology.

William Kenneth Howard, of Durham, N. C., has been temporarily promoted from the rank of lieutenant (jg) to lieutenant in the United States Naval Reserve at Charleston, S. C. He is a graduate of the Duke University School of Engineering.

Roy E. Shelton, formerly of High Point, N. C., has been promoted from captain to major at Camp Sutton, N. C., where he is post engineer in charge of all construction and building maintenance.

Louis G. Puls, senior engineer of the U. S. Bureau of Reclamation in Denver, Col., has been sworn into the Navy as a lieutenant commander with the Seabees.

Lieut. Col. G. J. Zimmerman, executive officer of Mobile, Ala., engineering district, has been transferred to the position of district engineer of the Norfolk engineering district with headquarters at Norfolk, Va. **Lieut. Col. H. J. Collins** succeeds Lieut. Col. Zimmerman at Mobile.

Lt. Col. Hugh E. Killin, area engineer at the Monticello, Ark., internment camp, has been assigned to duty at Fort Francis E. Warren, Wyo.

James H. Schwaderer, engineer for the Tuscola, Mich., County Road Commission for the past 22 years, has resigned.

Charles S. Ritts, who has been employed with the architectural firm of Holabird & Root, Chicago, has joined the engineering department of the Goodyear Aircraft Co., Akron, O. He is an architectural engineering graduate of Iowa State College, 1940.

Jay J. Seaver has been elected a vice-president of Day & Zimmermann, Inc., engineers, Philadelphia, Pa., with branch offices at New York and Chicago. Mr. Seaver attended the University of Michigan.

Dwyre resigns as N.M. state highway engineer

Burton G. Dwyre has resigned as state highway engineer of New Mexico to go to Brazil with the Pan American Airways, Inc. Mr. Dwyre has served as state highway engineer since January 1939, and served as president of the Western Association of State Highway Officials from February, 1940, until June, 1941, and he took an active part in the affairs of the American Association of State Highway Officials. He also served as president of the New Mexico Section of the American Society of Civil Engineers during 1941. Dwyre's successor as state highway engineer is Frank M. Limbaugh, who has been with the department for the past 21 years, having served as district engineer in Albuquerque since 1941.

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Naval supply depot completed in Utah

The second largest naval storehouse in the United States was completed and commissioned for service recently, less than ten months after ground was broken for the beginning of construction operations.

The storehouses are of three types and provide a total floor space of 175 acres. The buildings are constructed almost entirely of concrete, lumber and composition materials using little critically short metal.

Contractors on this project were Winstron Bros. Co.: C. F. Haglin & Sons, Inc.; The Missouri Valley Bridge & Iron Co.; and the Sollitt Construction Co., Inc. The Architect- engineers group was composed of Ashton, Evans and Hodgson, Blanchard and Maher, and the Clyde C. Kennedy Co.

JOBS OF THE WEEK

PIPE LINE, Texas and Indiana

War Emergencies Pipe Lines, Inc., Norris City, Ill. awarded contracts for 24-in. oil pipe line, between Beaumont, Tex., and Seymour, Ind., at total $44,000,000. Sherman & Allen, Houston, will construct section of line from Beaumont, Tex., to Baytown, Tex.; N. A. Saigh Construction Co., San Antonio, from Beaumont to Sabine River; Williams Brothers, Tulsa, section from area, and leg between Red River and White River; B & M Construction Co., Oklahoma City, Okla., section from White River to St. Francis River; Oil Construction Co., Tulsa, Okla., section from St. Francis River to Mississippi; Swinerton & Walberg, San Francisco, Calif., section from Mississippi to Norris City, Ill. Midwestern Engineering & Construction Co., Tulsa, Norris City to Patoka; and J. C. Truman, El Dorado, Ark., section from Patoka to Seymour. Defense Plant Corp. will finance.

HOUSING, Texas

R. P. Farnsworth & Co., Inc., New Orleans, La., has been awarded contract for housing, Texas, by Public Housing Administration, Fort Worth. Estimated cost is $3,295,063. Stone, Salisbury & McGuinty, Beaumont, Tex., are architects.

BLAST FURNACE, Texas

Lone Star Steel Co., Daingerfield, has awarded contract for additions at blast furnace now under construction. Project includes coke oven by-products facilities for producing ammonium sulphate and other by-products, to Austin Bridge Co., Dallas. The estimated cost is $2,700,000. Defense Corp. will finance.

BAKER DAM, Texas

Macco Construction Co., Clearwater, Calif., received contract for constructing completing Baker Dam on Buffalo Bayou Ship Channel, Harris Co., from Engineers, Galveston. Cost is estimated to be less than $1,233,000.

HOUSING, California

Standard Building Co., San Francisco, Calif., has been awarded contract for ing, management and maintenance building, and cafeteria building, Housing Authority, San Francisco City and County, San Francisco. The cost is $1,094,925. Hervey P. Clark, San Francisco, is the architect.

IMPROVEMENTS, Louisiana

U. S. Engineers, Little Rock, Ark., will award contract for improvements Bossier Parish to Weymouth Construction Co., Memphis. Cost will be $2,000,000.

HOUSING, Pennsylvania

Allegheny County Housing Authority, Pittsburgh, Pa. awarded contract ing to Haris Construction Co., Brooklyn, N. Y. Base bid No. 1, $846,500. Hoover, Pittsburgh, Pa., is the architect. Ellwood S. Tower, Pittsburgh, engineer.

IMPROVEMENTS, California

U. S. Engineers, Los Angeles, Calif., received lowest bid for improvements Beradino County from Ford J. Twaits Co., Los Angeles. Cost will exceed

WAREHOUSE, New Jersey

Walter Kidde Constructors, Inc., New York, N. Y., has been awarded contract warehouse and garage, in Essex Co. by U. S. Engineers, New York. Estimated cost $500,000-$1,000,000. Eggers, Higgins, Wilcox & Erickson, New York, N. Y., are the architects.

WAREHOUSES, New York

U. S. Engineers, Syracuse, N. Y., awarded the contract for four warehouses Oneida County to John W. Ryan Construction Co., Inc., New York. Estimated cost is $996,228.

PLANT, Evansville, Ind.

Defense Plant Corp., Washington, D. C., awarded contract for 1-story, plant tion to National Concrete Fireproofing Co., Speedway City, Ind. Estimated $500,000. Marr & Holman, Nashville, Tenn., are the architects. Republic Corp., Evansville, will operate.

HIGHWAY, Orlando, Fla.

Orange County Commissioners, Orlando, will build and pave nine miles concrete highway from Plymouth to Mount Dora, to cost $649,000. Contract been awarded to Ivy H. Smith Construction Co., Jacksonville, Fla.

Note—Additional bidding and contract news on many projects large and small appear in the News section beginning on page 13.

...adbuilders launch ...stwar program

(Continued from page 2)

...demands satisfied. Classification of ...nits named by Mr. Penn are:

	No. of units
...anes and shovels	18,304
...mpressors	12,966
...chers	1,505
...ishing machines	1,502
...aders	31,029
...ers and pavers	21,436
...ollers	11,649
...rapers	6,728
...ractors	33,450
...agons	1,216
...rushing, screening plants	2,532
...r Tools	24,416

...nufacturers claim there will be very ... change in present models for at ... the first year following the war. ... Penn said. M. B. Garber, acting di... ..., construction machinery branch, ... pointed out that while there would ...mple equipment available for post-...construction, most of it would be ... 3 to 7 years old.

Military work ahead

...litary construction requirements ... here on out to the end of the war ... discussed by two high-ranking offi... from the Army and Navy. The ...'s use for contractors were outlined ...apt. L. N. Moeller, director, progress ...ol and statistical department, Bu... of Yards and Docks. The cost-plus-...-fee type of contract was ideally ...d for the Navy's construction during ...ast three years, said Capt. Moeller, ...use speed of construction was para... ...t. time required for preparation of ... and specifications was lacking, and ...itions in the materials market were ...rtain. Now, however, the extreme ...ncy of construction has relaxed to a ... extent. Also, the Navy has pre... many standard plans and specifi... ...ns and the construction market of... ...opportunities to many contractors ... are anxious to obtain work yet to ... little work is available. These ...itions have lead the Bureau to ...iate lump-sum or unit-price con... ...ts.

...pt. Moeller could not predict shore ...truction for the coming year, except ... that out of the 1¼ billion dollars ...orized by Congress there still re... ...s unobligated 300 million dollars. ... Col. Enoch R. Needles pointed out ... war construction has risen from 229 ...n dollars in 1940 to 5½ billions in ... Only 30 percent of last year's vol... ...is expected this year, but he warned ...e is nothing static about the war."

Legislative action

... indication of the trend of thought ...respect to postwar planning in the ...way field is found in two bills now ...ng in Congress, said the associa... ... newly elected president, Carl W. ..., chief engineer, Missouri State Highway Department. One of these bills provides that unobligated funds be not reapportioned and the period for their use be extended. The other bill authorizes the appropriation of three billion dollars for highway construction—the amount to become available at the rate of one billion per year immediately following the close of the war. Federal participation with states and cities has, in the past, given too little consideration to cities and municipalities, said President Brown, and any legislation which is to do a complete and far-reaching job, must take into account the traffic problems that prevail in the municipalities and other congested areas of our nation.

Assurance that the A.R.B.A. will play a vital part in the rehabilitation and construction program after the war was given by Congressman Jennings Randolph of West Virginia, who stated that the future of mankind lies in the future of transportation and communications. A most critical period of employment will occur during the transition from total war to times of peace.

A large volume of construction

Future volumes of road construction may well depend on three major turning points, was the contention of Frank W. Herring, assistant director, National Resources Planning Board. These turning points are: the development and use of the airplane; the providing of facilities for the joint use of airplanes and motor vehicles; and the proper planning of traffic movement in our urban regions. Based on an anticipated yearly national income of 110 billion dollars after the war, we probably could afford to spend about 14 billion annually on all construction, both public and private. Of this amount, about 2½ billion could be expended for the construction of all transportation facilities, with about 1¾ billion being spent for highways, roads and streets.

Establishment of a Rural Roads Association as a part of the Federal Works Agency for the primary purpose of administering federal aid direct to counties was strongly advocated by the county highway officials division of the A.R.B.A. R. B. Traver, county engineer, Onondaga Co., New York, newly elected president of the county highway division, warned that unless counties had a definite road-building program prepared at the proper time, there would be little use in asking for federal aid.

R. W. Gamble, superintendent of street construction, Milwaukee, was re-elected president of the Municipal Division and E. R. Galvin, general sales manager of R. G. LeTourneau Co., was elected president of the Manufacturers Division.

Affiliation of the Associated Equipment Distributors as an active division of the A.R.B.A. was announced at the meeting.

WPB issues stop orders on more construction

To conserve material and manpower for more essential war uses, construction projects having a total cost of $2,892,347 were halted during the week ended April 23, the War Production Board has announced. This brought to $1,326,127,246 the total cost of all projects halted by either WPB or the programming agency since the Facility Review Committee was established in October, 1942, to examine the relationship of construction work to the war effort. Revocation orders previously issued halting projects having a cost of $610,906 were cancelled during the week. Resumption of work on these projects was authorized.

Track extension work planned by two railroad companies, the Atchison, Topeka and Santa Fe Ry. and the New York, New Haven and Hartford R.R., was halted April 29 by the War Production Board. The Santa Fe project called for track extension and siding between Richmond and Point Isabel near Albany, Calif. It was to provide rail service to a proposed shipyard, which has not yet been built. The New Haven project called for construction of twelve additional tracks in the Westchester Yard, Bronx, New York. The tracks were to have been used for the storage of materials awaiting shipment.

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Federal funds to build Detroit Expressway

Federal funds totaling $7,057,000 have been granted to the Michigan State Highway Department for additional construction on the Detroit Industrial Expressway, which links the metropolitan area with the U. S. Bomber Plant at Willow Run (*ENR*, Jan. 14, 1943, p. 58).

Six million dollars of this amount is to be applied to Section 3 of the expressway, which will extend from Southfield Road to Warren Avenue at the western limits of Detroit. The balance will be applied toward the cost of Section 2, bringing the federal participation on this portion of the project, now nearly completed, to nearly 100 percent.

A modern wholesale fruit and vegetable market for San Francisco, to cost $650,000, is proposed in a 72-page report of the United States Department of Agriculture and the University of California. It is said that the market could be built by private enterprise subject to certain regulations, or by a public corporation set up by local governmental agencies for the specific purpose of establishing and operating the market.

OBITUARY

Brig. Gen. Charles H. Barth, 39, was one of the men killed with Lt. Gen. Frank M. Andrews in the plane crash in Iceland early this month. Gen. Barth was born in Kansas and attended Princeton University for two years before being appointed to the United States Military Academy at West Point. He was graduated at the head of his class there, and was assigned to the Army Engineers, serving for a time as instructor at the Academy. A major at the outbreak of the war, he organized and directed the civilian defense program in the Panama Canal Zone. Subsequently he was promoted to the rank of colonel and assigned to the Middle East, where he served as Assistant Chief of Staff (Supply) under General Andrews before being transferred to London with his chief last February. He had been commissioned a brigadier general only a few weeks ago.

C. W. Hudson, 75, retired consulting engineer and a designer of many large bridges in the United States, including the Victory Bridge at Perth Amboy, N. J., died at Upper Montclair, N. J. on May 11. Mr. Hudson was graduated from Lehigh University in 1889 as a civil engineer. In 1925 his university conferred on him the degree of doctor of engineering for his designing of the bridge that made one city of the three smaller municipalities now forming Bethlehem, Pa. Mr. Hudson also designed the Washington Bridge at Providence, R. I. He was in charge of the department of civil engineering of the Polytechnic Institute of Brooklyn from 1907 to 1927. He was a director of the Am. Soc. C. E., 1920-22, and a trustee of the United Engineering Trustees, Inc. He was also a trustee of Lehigh University from 1924 to 1932.

Janon Fisher, Sr., 80, contracting engineer, who built the Fallsway and many public facilities in Baltimore, died there April 27.

James H. Eaton, 61, civil engineer at the Bureau of Standards, Washington, D. C., died April 1. Mr. Eaton went to Washington in 1930, first serving as a civil engineer in the Treasury Department. Earlier in his career he served with J. R. Worcester & Co. in Boston and with the New England Power Co.

William C. Hoover, 57, died May 1 at Akron, Ohio. In 1931 Mr. Hoover went to Russia as engineer in charge of construction plant layout on tire factories for the Soviet government. Later, for three years, he did consulting work in Poland, Austria, Hungary, Rumania, Greece, France, Czechoslovakia, Switzerland and England.

William F. Riley, 79, veteran municipal contractor, died May 2 at St. Louis, Mo. Mr. Riley had specialized in sewer construction.

Harry T. Bletzacker, 41, engineer of Wasatch and Utah counties and city engineer of Murray and Midvale, Utah, died April 11.

Lieut. Col. James C. Long, 57, United States Army engineer on duty at the Smoky Hill Army airfield near Salina, Kans., died April 29. Col. Long, a native of Fort Sherman, Idaho, was a veteran of the first World War. He called back to duty with the re when the United States entered the ent war to aid in designing and structing many Army projects.

Pinckney Franklin Simmons, 91, contractor of Morgantown, N. C. April 12.

John T. N. Hoyt, 70, chief civil neer for the Albert Kahn Asso Architects and Engineers, Inc., April 15 at Detroit.

Edward C. Constance, 68, civil neer with the St. Louis U. S. E Engineer's Office for more than 35 died, April 29.

CONTRACTS AND CAPITAL

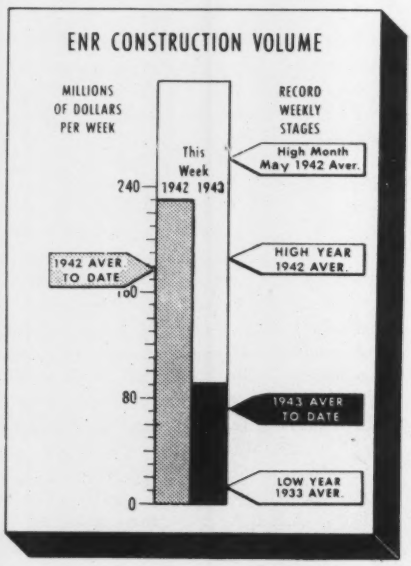
CIVIL ENGINEERING construction in continental U. S. for the week totals $90,019,000. This volume, not including the construction by military combat engineers, American contracts outside the country, and shipbuilding, is 26 percent above the preceding week, but 60 percent lower than in the corresponding week last year.

Public construction climbs 31 percent over a week ago as a result of gains in both state and municipal work, and federal volume. Private construction, however, is 43 percent under last week. Comparisons with the 1942 week reveal public work 59 percent lower, and private construction down 83 percent.

The current week's construction brings 1943 volume to $1,381,365,000, an average of $72,703,000 for each of the 19 weeks. On the weekly average basis, 1943 volume is 59 percent lower than the $3,556,613,000 reported for the 20-week period in 1942. Private $135,903,000 is 50 percent lower year ago, and public $1,245,462,000, is down 60 percent adjusted for the difference in the of weeks.

In the classified construction gains over last week are in water sewerage, bridges, industrial buil streets and roads, and unclassified struction. Increases over the 194 are in earthwork and drainage, and roads, and unclassified constru

New capital for construction pu for the week totals $3,251,000, made up entirely of state and mu bond sales. The new financing to the 19 weeks of 1943 totals $489,2 a figure that compares with $6,78 000 reported for the 20-week per 1942.



CONTRACTS

(Thousands of dollars)

	Week Ending May 14 1942	May 6 1943
Federal	$202,126	$62,417
State & Municipal	10,380	4,612
Total public	$212,506	$67,029
Total private	17,371	5,208
TOTAL	$229,877	$72,237
Cumulative 1943 (19 weeks)		
1942 (20 weeks)		

Note: Minimum size projects include Waterworks and waterways projects, $1 other public works, $25,000; industrial ings, $40,000; other buildings, $150,

NEW PRODUCTIVE CAPITAL

	Cumulati 1942 20 weeks
NON-FEDERAL	$246,373
Corp. Securities	77,264
State & Mun.	136,696
R.F.C. loans	32,413
FPHA loans	
FEDERAL	86,538,955
TOTAL CAPITAL	86,785,328

ENR INDEX NUMBERS

Index Base = 100	1913
Construction Cost	May '43 289.87
Building Cost	May '43 227.64
Volume	Apr. '43 225.

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